Presentation to the Governor's Higher Education Research Summit

Report of the Governor's Steering Committee on Research Capabilities and Centers of Excellence

Charles W. Steger, Committee Chair

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Steering Committee on Research Capabilities and Centers of Excellence

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Mr. Peter Blake, Deputy Secretary of Education
Dr. John Wilson, Office of Vice Provost for Research, Virginia Tech

Maintaining Research Vision under Constrained Budgets

- SCHEV analysis of research status in Virginia
- System Wide Strategic Plan for Virginia Higher Education

Virginia Higher Ed Research

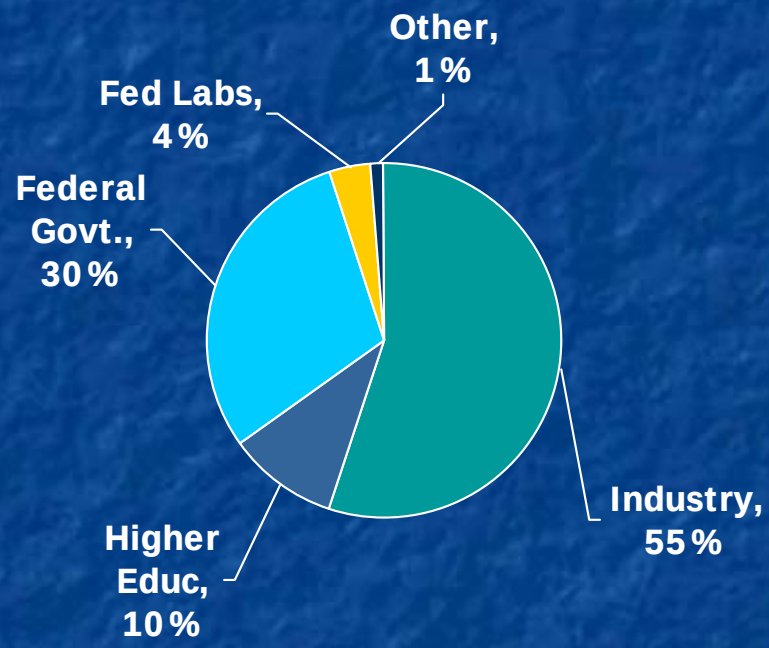
- Virginia ranked 16th in 2000, down from 15th in 1998
- Virginia expenditures only 2% of US total academic research; top 4 states are 33% of total
- Based on gross state product VA ranks 39th; on per capita basis, 37th

Rank	State	Expenditure $ millions	% of US total
5	MD	$1,495	5.1
6	MA	$1,469	5.0
7	IL	$1,157	3.9
8	NC	$1,015	3.4
9	MI	$987	3.3
10	OH	$914	3.1
11	GA	$914	3.1
12	FL	$842	2.9
13	WI	$652	2.2
14	WA	$634	2.1
15	MO	$609	2.1
16	**VA**	**$577**	**2.0**
US Total		$29,522	100

Total R&D at Doctoral-granting Institutions; National Science Foundation, *National Patterns of R&D Resources*--2000

Research in Virginia

- $5 billion/year
- 16th in nation
- Dominated by industry and federal agency/labs



Source: National Science Foundation, *Science & Engineering Indicators*–2000

Virginia's Research Universities

- Only Virginia Tech and U VA in top 100
- VT, UVA & VCU ~80% of total expenditures
- Top 40 institutions in US spend 50% of total academic research

University	*Rank*
William and Mary	158
George Mason	162
Old Dominion	186
Hampton	251
Virginia State	298
Norfolk State	311
James Madison	403
U. Of Richmond	416
Radford	495
Virginia Military Inst.	501

Source: National Science Foundation, *Academic Research and Development Expenditures—Fiscal Year 2001.*

SCHEV Findings

1. Attracting federal support requires alignment of faculty expertise with federal research agenda
2. Virginia's institutions lag behind in attracting and retaining world-renowned researchers
3. Few science & engineering grad programs are rated in top tier; limits ability to develop world-class researchers
4. Serious shortfall in research space in VA; bond referendum will add only 50% of needed space
5. Research equipment will suffer from budget cuts to Equipment Trust Fund
6. Virginia's faculty do not generate as much research support per capita as peers
7. Lack of state policies to foster academic research hinders the ability to advance research programs
8. Successful state R&D initiatives
   - Focus areas of research
   - Have long-term, sustained investments
   - Foster collaboration among higher ed, government, and business

Focus of Steering Committee on Research Capabilities and Centers of Excellence

- Specific recommendations starting with SCHEV report--9
- Recognize the value of scholarly inquiry, but focus on research and economic development

Funded research and economic development

- MIT example—4,000 companies, 125,000 employees from research activity
- Research Triangle—100 R&D companies, 37,000 employees
- Johns Hopkins counter-example—minimal economic benefit from #1 ranked university; economic development has not been a mission focus

Competitive Environment for Research

- International
  - Europe and Asia investing in genomics, computational sciences, life sciences
- National
  - Research agendas and directions from federal agencies—NIH, NSF, Homeland Security
  - Cost sharing and teaming are important elements; states are investing—Georgia, Michigan, North Carolina, New York, Pennsylvania, Ohio
- State
  - Commonwealth Technology Research Fund—good start but victim of budget cuts
  - Virginia Life Science Initiative
  - Carilion Biomedical Institute partnership
  - Equipment Trust Funds—positive influence on competitiveness, but another victim
  - Collaboration between Virginia Institutions--Examples

Competitive Position of Virginia Programs

"15 additional Virginia research programs ranked in top 5 nationally by end of decade[1]"

- What is rational basis of rankings?
- How can the various ratings be reconciled (outdated National Research Council vs. "popular" US News)?
- How can self-identified strengths be evaluated?
- Is there a basis for differential investment strategy?

Inst.	Rank	Prog.	Source	Year
UVA	4	English Lang & Lit.	National Res. Council	1995
UVA	5	Spanish & Portuguese	National Res. Council	1995
UVA	6	Religion	National Res. Council	1995
VT	8	Ind. Engr.	National Res. Council	1995
UVA	9	Physiology	National Res. Council	1995
VMI	6	Civil Eng (w/o PhD)	US News	2002
VT	5	Polymer Chem.	US News	1999
VT	8	Ind & Syst Engr	US News	2002
VT	9	Stratigraphy/ Sediment	US News	1999
ODU	17	Oceanography	National Res. Council	1995

[1]Governor Mark Warner, State of Commonwealth Address, 2002.

Committee Recommendation #1

Step One:

- VRTAC analyze notable programs in Virginia and develop a list of the highest nationally ranked programs.

Step Two:

- Commission a “Blue Ribbon Panel” made up of (paid) nationally recognized experts identified through National Academies to evaluate notable programs and compare to other nationally ranked

(Funding Provided by Governor Warner)

This recommendation sets the basis for other recommended actions

Expected Outcomes of Panel Analysis

- Blueprint for managing investments in those universities where the potential for broad institutional excellence is likely
- Identification of specific research programs that are truly excellent and well-positioned to align with multiple federal research strategies
- Identification of weaknesses among the strong programs that could be overcome with strategic investments
- Identification of opportunities for research universities to partner and gain synergistic advantages to link with major federal initiatives

Committee Recommendation #2

- Develop systematic, strategic investment strategy (based on study from 1st recommendation) using expanded/focused CTRF program requiring teaming—at least $100 M per biennium required

Committee Recommendation #3

- Articulate the value of university research on economic well-being of Virginia to public and legislature

Committee Recommendation #4

- Capitalize on fed agency proximity to enhance fed funding and enhanced economic development

Committee Recommendation #5

- Build industry partnerships; evaluate laws and policies on Intellectual Property that may inhibit

Committee Recommendation #6

- Examine efficacy of federal advocacy for higher education in Virginia to increase federal awards by coordinated advocacy and strategic collaboration
  - Vast majority of federal funding awarded through competitive peer review process, but significant portion comes through Congressional “earmarks.”

Committee Recommendation #7

- Categorize roles of higher ed institutions in Virginia and develop differential investment strategies based on these roles

Committee Recommendation #8

- Initiate a Commonwealth-wide GRA stipend program in areas impacting economic development

Committee Recommendation #9

- Reevaluate state fiscal policies to remove disincentives for research. Study legal and policy environment supporting most successful research universities—compare to Virginia.
- Barriers to building research programs:
  - 30% of indirect to E&G
  - Equipment trust fund for research
  - Maintenance and renovation of research space
  - Capital construction policy for research space
  - Insufficiency of state matching funds to support ambitious grant proposals.

Next Steps

- *2003 Systemwide Strategic Plan for Virginia Higher Education* has been approved by SCHEV
  - Three goals:
    1. Accommodate at least 38,000 additional students
    3. Preserve the Commonwealth's historic commitment to instructional quality